



SAFETY ADVISORY BULLETIN 98-01

SHIPBOARD SYSTEM MODIFICATIONS

Modifications, both permanent and temporary, of some shipboard systems are inevitable over the life of a ship. These modifications may be required due to a change in the vessel's trade, in technology, or in regulatory standards. Modifications may also be made on a temporary basis pending permanent repairs. Well considered and fully documented modifications tend to maintain safety and prevent pollution. Ill conceived and/or undocumented modifications endanger both the safety of the ship and the marine environment. The following cases emphasize the point:

- ◆ About 2,000 gallons of oil were spilled during a bunkering operation. Among the underlying problems were a number of seemingly minor fuel system modifications that made bunkering more difficult and increased the likelihood of a mistake. Original sounding tubes were unusable due to the location of bulkheads and machinery. Retro-fitted sounding tubes were not located near the ship's phone system making communication difficult.
 - ◆ A ship grounded when it lost power and steering control. Ship's power was lost due to a blockage in the diesel oil supply system. The blockage resulted from sludge in a small in-line tank that was retro-fitted by a prior owner. Neither the small tank nor its purpose was well documented.
 - ◆ A diesel spill occurred when a service tank for a ship's auxiliary generator system overflowed. Part of the problem was attributed to a failure to properly align the valves in the fuel system. The crew did not have an up-to-date piping diagram that showed how the system was arranged. The system was a modification to the original ship configuration.
 - ◆ A converted ballast tank was overfilled with diesel. The crew did not have information on either the tank's capacity or the maximum allowable filling rate. The tank did not have a sounding tube installed to allow verification of the tank level.
- The following are suggested to help ensure that system modifications do not undermine safety and pollution prevention efforts:
- ◆ Avoid multiple modifications to a system that reduce or bypass safety protections.
 - ◆ Carefully plan temporary fixes to avoid hidden hazards.
 - ◆ Implement appropriate lock-out, tag-out procedures to maintain safety while modifications are being made.
 - ◆ Document system changes in logbooks, manuals, and system diagrams.
 - ◆ Inform relieving personnel so that system changes are known and understood before getting underway.
 - ◆ Review maintenance and operation procedures for a modified system to ensure the procedures reflect the change.
 - ◆ Have the vessel's classification society or other appropriate authorities inspect and approve modifications to ensure compliance with the ship's flag state requirements.

Certification under the International Management Code for the Safe Operation of Ships and for Pollution Prevention (the ISM Code) requires that ships be maintained in accordance with relevant rules, regulations and company policy. It also requires a system for maintaining up-to-date documentation. Adherence to ISM requirements will help ensure that system safety and pollution prevention integrity is maintained despite modifications.

WASHINGTON STATE


Department of Ecology

P.O. Box 47600, Olympia, WA 98504-7600

BULK RATE
U.S. POSTAGE PAID
Washington State

**Forwarding and Return Postage
Guaranteed.**

Other Publications Available


 **The DONA V**

PREVENTION BULLETIN 95-01


OVERVIEW

On October 11, 1994, at about 0410 hours, the DONA V, a Liberian-flagged bulk cargo vessel, was forced to shutdown her main diesel engine because of a mechanical failure. The vessel was completing an 18-day trip from China to Tacoma and was to load bulk grain.

When the Captain stopped the engine, the DONA V was approximately 2880 yards northeast of Foulweather Bluff in Admiralty Inlet in the inbound vessel traffic lane, southeasterly direction.



P.O. Box 42407 ■ Olympia, WA 98504 ■ (360) 664-9110

 **The VERBIER**


PREVENTION BULLETIN 95-02

OVERVIEW


On July 10, 1994, at about 1900 hours, the VERBIER, a Panamanian-flagged bulk cargo vessel in poor material condition, was forced to shut-down her main diesel engine because of a mechanical failure.

The vessel was outbound to Tunisia from Vancouver, BC, loaded with 28,105 metric tons of sulfur in bulk.

While in Vancouver, the vessel had been detained by the Canadian Coast Guard for multiple SOLAS violations.



P.O. Box 42407 ■ Olympia, WA 98504 ■ (360) 664-9110


 **The KEYSTONE CANYON**

PREVENTION BULLETIN 96-01


OVERVIEW

On October 26, 1994, at about 1300 hours, the KEYSTONE CANYON was blown off Pier One in Astoria, Oregon, parting or paying out all her mooring lines. After several failed attempts by the Master to regain control and maneuver the vessel, the vessel allided with the Astoria-Megler Bridge then grounded along the west side of the bridge.

Damage to the vessel consisted of a four-foot gash, three inches wide, at frame 34 in number 1 port ballast tank, an upset deep web frame at



P.O. Box 42407 ■ Olympia, WA 98504 ■ (360) 664-9110


 **The BARGE 101**

PREVENTION BULLETIN 96-02

OVERVIEW

On December 30, 1994, BARGE 101 grounded while being towed by the tug MERCURY to Jack Island, Washington (near Anacortes) from Vancouver, British Columbia. At the time of the grounding, BARGE 101 was carrying 62,404 barrels of number two diesel oil, and had a draft of 16-feet 5 inches forward and 19-feet 5 inches aft.

The grounding punctured the number four and six starboard cargo tanks. Damage to the bottom of BARGE 101 was found on the



P.O. Box 42407 ■ Olympia, WA 98504 ■ (360) 664-9110

☐ **The DONA V (2/95)**

☐ **The VERBIER (11/95)**

☐ **The KEYSTONE
CANYON (2/96)**

☐ **The BARGE 101
(12/96)**

To obtain copies, simply mark the bulletin(s) requested and mail or fax a copy of this page to our Olympia office, or call us at the number below. Please be sure your address and phone are clearly indicated in the space above.

Fax: (360) 407-7288 ♦Phone: (360) 407-7455

☐ Check here to automatically receive copies of future Prevention Bulletins.

Ecology is an equal opportunity agency. If you have special accomodation needs, contact Mariann Cook Andrews at (360) 407-7211 (Voice) or (360) 407-6006 (TDD).



Printed on Recycled Paper